File NR G4-35576
WR Doc ID 5356381

DEPARTMENT OF ECOLOGY
State of Washington

State of Washington
DRAFT
REPORT OF EXAMINATION FOR WATER RIGHT APPLICATION

PRIORITY DATE	WATER RIGHT NUMBER
7/24/2012	G4-35576

MAILING ADDRESS	SITE ADDRESS (IF DIFFERENT)
ARTHUR ESHE 321 RANGE VIEW RD CLE ELUM, WA 98926	00941 OLD CEDARS ROAD CLE ELUM WA 98926

Quantity Authorized for Withdrawal or Diversion

WITHDRAWAL OR DIVERSION RATE	UNITS	ANNUAL QUANTITY (AF/YR)
7.14	GPM	0.414

Purpose

	WITHDRAWAL OR DIVERSION RATE			ANNUAL QUANTITY (AF/YR)		PERIOD OF USE (mm/dd)
PURPOSE	ADDITIVE	NON-ADDITIVE	UNITS	ADDITIVE	NON-ADDITIVE	
Domestic Single	7.14		GPM	0.392		01/01 - 12/31
Irrigation		7.14	GPM	0.022		06/01 - 09/30

REMARKS

A maximum of 7.14 gallons per minute (gpm), 0.414 acre-feet per year (af/yr) for 1 residence (0.392 af/yr for year-round continuous single domestic supply and 0.022 af/yr for irrigation of lawn and garden up to 0.011 acre between June 1 and September 30 annually). The combined instantaneous quantity from the well identified by Ecology's unique well tag No. AKW-634 shall not exceed 50 gallons per minute (gpm) based upon 7.14 gpm for each connection, up to a 7-connection maximum. Final beneficial use calculations for each connection either independently or combined shall be determined during the investigation at the Proof of Appropriation stage.

IRRIGATED ACRES		PUBLIC WATER SYSTEM INFORMATION	
ADDITIVE	NON-ADDITIVE	WATER SYSTEM ID	CONNECTIONS
0.011	0	AB764	7

Source Location

COUNTY	WATERBODY	TRIBUTARY TO	WATER RESOURCE INVENTORY AREA
KITTITAS	GROUNDWATER		39-UPPER YAKIMA

SOURCE	PARCEL	WELL TAG	TWP	RNG	SEC	QQ Q	LATITUDE	LONGITUDE
1 Well	20869	AKW-634	20N	14E	19	NWNE	47.21667	-121.14240

Datum: NAD83/WGS84

Place of Use (See Attached Map)

PARCELS (NOT LISTED FOR SERVICE AREAS)

953673

LEGAL DESCRIPTION OF AUTHORIZED PLACE OF USE

Lot 8B of OLD CEDARS SHORT PLAT 07-24; Section 19, Township 20 N., Range 14 E.W.M., Kittitas County, State of Washington.

Proposed Works

The subject well was drilled in 2005 (Ecology unique Well ID # AKW-643) to a depth of 70 feet with a 6-inch casing. The water distribution system includes three 119-gallon capacity pressure tanks, a chlorination system, and a 2,400-gallon capacity storage tank. The mainlines are 1.5-foot PVC, extending 1,150 feet to individual meters and the 7 residences. The well is metered.

The Toby Johnson Water System is a Department of Health (DOH) - approved Group B community, private water system and will be regulated by DOH. A total of 7 connections are calculated for this water system; however, DOH has no current source information.

Domestic wastewater will be discharged to an on-site septic system, pursuant to the *Declaration of Covenant* signed July 22, 2012, by the applicant.

Development Schedule

BEGIN PROJECT	COMPLETE PROJECT	PUT WATER TO FULL USE
Begun	October 31, 2015	October 31, 2017

In determining the timeframe of the above Development Schedule, that is the amount of time for the applicant to implement the authorized use of water, a reasonable and just time was considered and allowed under the existing conditions to complete construction of the project. Sufficient time was also awarded in order for the applicant to collect water-use data and to put the water to full beneficial use. The **Development Schedule** reflects consideration of the cost and magnitude of the project and the potential engineering and physical features typically to be encountered.

Measurement of Water Use

How often must water use be measured?	Monthly
How often must water use data be reported to Ecology?	Annually (Jan 31)
What volume should be reported?	Total Annual Volume
What rate should be reported?	Annual Peak Rate of Withdrawal (gpm)

Provisions

A. Wells, Well Logs and Well Construction Standards

1. The subject well and the right to use water from it is restricted to and authorized for the upper, unconfined alluvial sediment aquifer.
2. All wells constructed in the state shall meet the construction requirements of WAC 173-160 titled "Minimum Standards for the Construction and Maintenance of Wells" and RCW 18.104 titled "Water Well Construction." Any well which is unusable, abandoned, or whose use has been permanently discontinued, or which is in such disrepair that its continued use is impractical or is an environmental, safety or public health hazard shall be decommissioned.
3. All wells shall be tagged with a Department of Ecology unique well identification number. If you have an existing well and it does not have a tag, please contact the well-drilling coordinator at the regional Department of Ecology office issuing this decision. This tag shall remain attached to the well. If you are required to submit water measuring reports, reference this tag number.
4. Installation and maintenance of an access port as described in WAC 173-160- 291(3) is required.

B. Measurements, Monitoring, Metering and Reporting

1. An approved measuring device shall be installed and maintained for the source identified by this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use," WAC 173-173.
2. Recorded water use data shall be submitted via the Internet. To set up an Internet reporting account, contact the Central Regional Office. If you do not have Internet access, you can still submit hard copies by contacting the Central Regional Office for forms to submit your water use data.
3. WAC 173-173 describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition the Department of Ecology for modifications to some of the requirements.

C. Water Level Measurements

1. In order to maintain a sustainable supply of water and ensure that your water source is not impaired by future withdrawals, static water levels **should** be measured and recorded monthly using a consistent methodology. Static water level is defined as the water level in a well when no pumping is occurring and the water level has fully recovered from previous pumping. Static water level data should include the following elements:

   - Unique Well ID Number.
   - Measurement date and time.
   - Measurement method (air line, electric tape, pressure transducer, etc.).
   - Measurement accuracy (to nearest foot, tenth of foot, etc.).
   - Description of the measuring point (top of casing, sounding tube, etc.).

- Measuring point elevation above or below land surface to the nearest 0.1 foot.
- Land surface elevation at the well head to the nearest foot.
- Static water level below measuring point to the nearest 0.1 foot.

D. Water Use Efficiency

1. The water right holder is required to maintain efficient water delivery systems and use of up-to-date water conservation practices consistent with RCW 90.03.005.

E. Proof of Appropriation

1. The water right holder shall file the notice of Proof of Appropriation of water (under which the certificate of water right is issued) when the permanent distribution system has been constructed and the quantity of water required by the project has been put to full beneficial use. The certificate will reflect the extent of the project perfected within the limitations of the permit. Elements of a proof inspection may include, as appropriate, the source(s), system instantaneous capacity, beneficial use(s), annual quantity, place of use, and satisfaction of provisions.

F. Schedule and Inspections

1. Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the project location, and to inspect at reasonable times, records of water use, wells, diversions, measuring devices and associated distribution systems for compliance with water law.

G. General Conditions

1. This authorization shall in no way excuse the permittee from compliance with any federal, state, or local statutes, ordinances, permits, or regulations including those required and administered by other programs of the Department of Ecology.
2. You (applicant) will pay the sum of $57.02, which represents a proportionate amount of the payment due and owing to the United States for storage and deliver of water under Paragraph 15(a) of Water Storage and Exchange Contract No. 09XX101700, between the Bureau of Reclamation and the State of Washington Department of Ecology, Yakima Project, Washington, dated January 29, 2009.[1] The consumptive use of 0.072 acre-feet from September 1 through March 1 is subject to the terms and conditions in the Water Storage and Exchange Contract No. 09XX101700.
3. You (applicant) will record with the Kittitas County Auditor a property covenant as required under WAC 173-539A-050 that restricts or prohibits trees or shrubs over a septic drain field on Parcel No. 953673.
4. You (applicant) will record with the Kittitas County Auditor an appropriate conveyance instrument under which the applicant obtains an interest in Trust Water Right No. CS4-01676sb5d@3 to offset consumptive use.

[1] "Long-Term Water Storage and Exchange Agreement between the U.S. and the State of Washington, Department of Ecology" (Contract No. 09XX101700), http://www.ecy.wa.gov/programs/wr/cro/images/pdfs/exchangecontract_012909.pdf, access on January 23, 2013.

Findings of Facts

Upon reviewing the investigator's report, I find all facts, relevant and material to the subject application, have been thoroughly investigated. Furthermore, I concur with the investigator that water is available from the source in question; that there will be no impairment of existing rights; that the purpose(s) of use are beneficial; and that there will be no detriment to the public interest.

Therefore, I ORDER approval of Application No. G4-35576, subject to existing rights and the provisions specified above.

Your Right To Appeal

You have a right to appeal this Order to the Pollution Control Hearings Board (PCHB) within 30 days of the date of receipt of this Order. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do the following within 30 days of the date of receipt of the Order.

File your appeal and a copy of this Order with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.

- Serve a copy of your appeal and this Order on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.
- You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608
Pollution Control Hearings Board 1111 Israel RD SW Ste 301 Tumwater, WA 98501	**Pollution Control Hearings Board** PO Box 40903 Olympia, WA 98504-0903

Signed at Yakima, Washington, this _____ day of _____ 2013.

_____

Mark Kemner, LHG, Section Manager
Water Resources Program/CRO

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov
To find laws and agency rules visit the Washington State Legislature Website: http://www.leg.wa.gov/CodeReviser

BACKGROUND

This report serves as the written findings of fact concerning Water Right Application Number G4-35576.

Priority Processing

This application is being priority processed because it qualified under the criteria under which an application may be processed prior to competing applications (WAC 173-152).

On July 24, 2012, the Department of Ecology (DOE) received an application for *Determination of Water Budget Neutrality* from Mr. Eshe. Ecology subsequently determined that the proposal did not meet the requirements of a permit exemption so Ecology converted the existing, Determination of Water Budget Neutrality application into an *Application for Water Right Permit*. The following parameters are being proposed:

Table 1: Summary of "Requested" Water Right

Applicant Name	Arthur Eshe
Date of Application	7/24/2012
Place of Use	Lot 8B of OLD CEDARS SHORT PLAT 07-24; Section 19, Township 20 N., Range 14 E.W.M., Kittitas County, State of Washington.

County	Waterbody	Tributary To	WRIA
Kittitas	Groundwater	N/A	39-Upper Yakima

Purpose	Rate	Unit	Ac-ft/yr	Begin Season	End Season
Domestic Single	7.14	GPM	0.392	01/01	12/31
Irrigation	7.14	GPM	0.022	05/01	09/15

Source Name	Parcel	Well Tag	Twp	Rng	Sec	QQ Q	Latitude	Longitude
1 Well	953673*	AKW-634	20N	14E	19	NW NE	N/A	N/A

CFS = Cubic Feet per Second; Ac-ft/yr = Acre-feet per year; Sec. = Section; QQ Q = Quarter-quarter of a section; WRIA = Water Resource Inventory Area; E.W.M. = East of the Willamette Meridian; Datum: NAD83/WGS84.

*See correction of point-of-withdrawal under *Site Visit*.

Legal Requirements for Approval of Appropriation of Water

RCWs 90.03 and 90.44 authorize the appropriation of public water for beneficial use and describe the process for obtaining water rights. Laws governing the water right permitting process are contained in RCW 90.03.250 through 90.03.340 and RCW 90.44.050. In accordance with RCW 90.03.290, determinations must be made on the following four criteria in order for an application for water rights to be approved:

- Water must be available.
- There must be no impairment of existing rights.
- The water use must be beneficial.
- The water use must not be detrimental to the public interest.

Public Notice

RCW 90.03.280 requires that notice of a water right application be published once a week, for two consecutive weeks, in a newspaper of general circulation in the county or counties where the water is to be stored, diverted and used. Notice of this application was published in The Daily Record on October 26 and November 2, 2012. No comments or protests were received by Ecology during the 30-day comment period.

Consultation with the Department of Fish and Wildlife

The Department must give notice to the Department of Fish and Wildlife of applications to divert, withdraw or store water. Notice was officially provided on March 4, 2013 by Candis Graff and Stuart Luttrell during a Yakima Water Transfer Working Group (WTWG) meeting. A positive reaction was communicated in response to this proposal.

State Environmental Policy Act (SEPA)

A water right application is subject to a SEPA threshold determination (i.e., an evaluation whether there are likely to be significant adverse environmental impacts) if any one of the following conditions is met:

(a) It is a surface water right application for more than 1 cubic foot per second, unless that project is for agricultural irrigation, in which case the threshold is increased to 50 cubic feet per second, so long as that irrigation project will not receive public subsidies.
(b) It is a groundwater right application for more than 2,250 gallons per minute.
(c) It is an application that, in combination with other water right applications for the same project, collectively exceed the amounts above.
(d) It is a part of a larger proposal that is subject to SEPA for other reasons (e.g., the need to obtain other permits that are not exempt from SEPA).
(e) It is part of a series of exempt actions that, together, trigger the need to do a threshold determination, as defined under WAC 197-11-305.

Because this application does not meet any of these conditions, it is categorically exempt from SEPA and a threshold determination is not required.

INVESTIGATION

Site Visit

A site visit was performed by Ecology employees Candis Graff, Stuart Luttrell, and Anna Hoselton on February 19, 2013. Global Positioning Satellite (GPS) coordinates were taken of the location of the well head. When coordinates were downloaded into Ecology's mapping software, ESRI ArcMap 10.0, it was noted that the subject POW is located on Parcel No. 20869, not on Mr. Eshe's parcel, No. 953673 as described in the application. The correction of source location is made in this Report.

Area geology was also noted.

Proposed Use and Basis of Water Demand

The DOH-approved Group B water system, Toby Johnson Water System, became effective on May 17, 2007, and is approved for 7 connections, with a residential population of 18. The source is metered.

Domestic Water Use

The December 2009, Water System Design Manual[2] (WSDM), published by the Washington State Department of Health (DOH), contains guidance for establishing water demands. The suggested methods, in order of preference, include:

1. Metered water-production and use records.
2. Comparable metered water-production and use data from analogous water system. See WAC 246-290-221(3)(a) and Section 5.2.3.
3. The criteria presented in Chapter 5.

According to the WSDM, new systems or existing water systems that have no source meter records, information can be obtained from analogous water systems or from information presented in Appendix D in order to estimate the Average Daily Demand (ADD) and Maximum Daily Demand (MDD) for residential connections (WAC 246-290-221(3)).[3] Analogous water systems are defined in Section 5.2.3 of the WSDM as systems with similar characteristics, such as, but not limited to: demographics, housing size, lot sizes, climate, conservation practices, use restrictions, soils and landscaping, and maintenance practices. As such, a reasonable level for a MDD for internal uses can be established at 350 gallons per day (GPD)/Equivalent Residential Unit (ERU).

Since there is no water use for the proposed residence to review and records for qualifying analogous systems are not available, the MDD values are set at 350 gpd/Equivalent Residential Unit, which is consistent with the WSDM. Under WAC 173-539A, 30% domestic in-house use on a septic system is assumed to be consumptively used and 90% of outdoor domestic use is assumed to be consumptive.

Monthly and annual use at full build-out of the project were calculated based on the proposed one ERU, DOH's MDD, Ecology's Guidance Document 1210 entitled, Determining Irrigation Efficiency and Consumptive Use, the Washington Irrigation Guide (WIG) for outdoor water use, and the assumptions found in WAC 173-539A. A crop irrigation requirement (CIR) for grass in the Cle Elum area of 18.11 inches was estimated using the WIG. Assuming the outdoor use is 90% consumptive, consistent with WAC 173-539A, and applying the WIGs CIR, the outdoor water requirement for 0.011-acre of grass is 0.019 ac-ft/yr. The calculated consumptive use and total calculation considered factors specified in WAC 173-539A and are summarized in **Table 2** below.

[2] Department of Health, "Water System Design Manual," Olympia, Wa., 2009, pp. 27-32, www.doh.wa.gov/ehp/dw/Publications/331-123.pdf, accessed on January 4, 2013.

[3] Ibid., p. 28.

Table 2: *Estimated Total and Consumptive Use

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Total Use (ac-ft)	.033	.030	.033	.032	.033	.036	.041	.039	.036	.033	.032	.033	**0.414**
Total Consumptive (ac-ft)	.010	.009	.010	.010	.010	.013	.017	.015	.013	.010	.010	.010	**0.137**

*Quantities are rounded.

Other Area Water Rights

Table 3: Water Rights Appurtenant to Proposed Place-of-Use

Control #	Document Type	Source	Purpose	Quantity (Qa)	POU
S4-84638-J	CFO	Yakima River	SR	166,846	Yakima Basin
S4-84639-J	CFO	Kachees River	SR	250,261	Yakima Basin
S4-84640-J	CFO	Yakima River	SR	446,610	Yakima Basin
S4-84641-J	CFO	Bumping River	SR	38,768	Yakima Basin
S4-84642-J	CFO	Tieton River	SR	216,850	Yakima Basin
S4-84643-J	CFO	Tieton River	SR	5,300	Yakima Basin
S4-84644-J	CFO	Yakima River	SR	472	Yakima Basin
S4-84645-J	CFO	Tieton River	SR	2	Yakima Basin
S4-84646-J	CFO	Yakima River	SR	56	Yakima Basin
S4-84647-J	CFO	Yakima River	SR	60	Yakima Basin
S4-84648-J	CFO	Yakima River	SR	408	Yakima Basin
S4-84649-J	CFO	Tieton River	SR	1,265	Yakima Basin
S4-84650-J	CFO	Yakima River	SR	5,120	Yakima Basin
S4-84347-J	CFO	Yakima River	DS, IR, PO, ST	336,000	KRD Boundary
S4-84348-J	CFO	Yakima River	PO	25,000	KRD Boundary
G4-034936CL	Claim-Short	1 Well	DG	Not specified	Sec. 19 & 20, T. 20 N., R. 14 E.W.M.

SR=Storage, DG=Domestic General, IR-Irrigation, DS=Domestic Single, PO=Power, ST= Stock water, CFO=Conditional Final Order, KRD=Kittitas Reclamation District

Surface Water Adjudicated Certificate Nos. S4-84347-J and S4-84348-J, which are owned by Kittitas Reclamation District, provide water for purposes of irrigation, incidental domestic, stock watering, and non-consumptive power generation within the KRD boundaries.

All other surface water rights referenced above in Table 3 are owned by U.S. Bureau of Reclamation and are authorized to store water without the actual use of said water.

Ground Water Claim[4] No. G4-034936CL may use water for domestic purposes to include incidental lawn and garden irrigation.

Table 4: Water Rights Within 0.5-mile Radius of Proposed Place-of-Use

Control #	Document Type	Source	Purpose	Quantity (Qa)
S4-83034-J	CFO	2 unnamed streams	IR, ST	93
G4-35400P	Mitigated Permit	3 wells	DM, IR	WBN
G4-062599CL	Claim-Short	1 well	DG	Not specified
G4-35298P	Mitigated Permit	1 well	DS, IR	WBN
G4-063264CL	Claim-Short	1 well	DG	Not specified
G4-054411CL	Claim-Short	1 well	DG	Not specified
G4-073610CL	Claim-Short	1 well	DG	Not specified
G4-036290CL	Claim-Short	1 well	DG	Not specified
G4-108734CL	Claim-Short	1 well	IR	Not specified
G4-026136CL	Claim-Long	1 well	DG	Not specified
G4-091169CL	Claim-Short	1 well	DG, IR	Not specified

DG=Domestic General, DS=Domestic Single, DM=Domestic Multiple IR-Irrigation, WBN=Water Budget Neutral, ST= Stock water, CFO=Conditional Final Order

Adjudicated Surface Water Certificate No. S4-83037 has authorization for 43 acres of irrigation and stock water uses.

Mitigated Permit Nos. G4-35400P and G4-35298P have offset any consumptive use with mitigated water, similar to the subject proposal.

The Claims referenced above claim water for private, single use, primarily within a short plat called Pine Glen.

Water Availability

For water to be available for appropriation, it must be both physically and legally available.

Physical Availability

For water to be physically available for appropriation there must be ground or surface water present in quantities and quality and on a sufficiently frequent basis to provide a reasonably reliable source for the requested beneficial use or uses. In addition, the following factors are considered:

- Volume of water represented by senior water rights, including federal or tribal reserved rights or claims.
- Water right claims registered under Chapter 90.14 RCW.

[4] The above and below-referenced claims were filed under Claims Registration Act, RCW 90.14. The intent of this act was to document those uses of surface water in existence prior to the adoption of the State Surface Water Code, RCW 90.03, which was adopted in 1917, and those uses of ground water in existence prior to the adoption of the State Ground Water Code, RCW 90.44, which was adopted in 1945. Since each code adoption, the only means of acquiring a water right within the state is by filing for, and receiving, a permit from Ecology or one of its predecessors or by establishing a right under the "exemption" under the Ground Water Code RCW 90.44.050. Ecology recognizes that the final determination of the validity and extent associated with a claim registered in accordance with RCW 90.14 ultimately lies with the Superior Court through the general adjudication process provided for by RCWs 90.03.110 through 90.03.240. Ecology does, however, recognize that water use may be occurring under these claims.

- Ground water uses established in accordance with Chapter 90.44 RCW, including those that are exempt from the requirement to obtain a permit.
- Potential riparian water rights, including non-diversionary stock water.
- Lack of data indicating water usage can also be a consideration in determining water availability, if the department cannot ascertain the extent to which existing rights are consistently utilized and cannot affirmatively find that water is available for further appropriation.

Based on the hydrogeologic setting, well data, and the simplified water balance, **groundwater is physically available for the project due to the in-basin mitigation offered.**

Legal Availability

To determine whether water to be legally available for appropriation, the following factors are considered:

- Regional water management plans – which may specifically close certain water bodies to further appropriation.
- Existing rights – which may already appropriate physically available water.
- Fisheries and other instream uses (e.g., recreation and navigation). Instream needs, including instream and base flows set by regulation. Water is not available for out of stream uses where further reducing the flow level of surface water would be detrimental to existing fishery resources.
- The Department may deny an application for a new appropriation in a drainage where adjudicated rights exceed the average low flow supply, even if the prior rights are not presently being exercised. Water would not become available for appropriation until existing rights are relinquished for non-use by state proceedings.

Legal availability is ultimately a permitting/management decision that is, in part, based on the above information.

Hydrologic/Hydrogeologic Evaluation

The following hydrologic/hydrogeologic technical excerpts were prepared and stamped by licensed hydrogeologist and unit supervisor, Stuart Luttrell, and seeks to address, by way of discussion, analysis, and evaluation, potential for impairment to existing water users. The entire Technical Memorandum can be reviewed upon request.

Geology and Hydrogeology

The aquifer of interest is unconfined and occurs as the saturated portion of the Yakima River Valley alluvial unconsolidated sediments. A well located approximately 1,500 ft southeast of the subject well was drilled to a total depth of 320 ft and encountered silty sand to a depth of 139 ft, below which the sediments were described as clay, silty clay and silty sand with clay; the well was decommissioned because it did not produce water. Material descriptions from this and other nearby wells indicate the most permeable portion of the aquifer exists in roughly the upper 80 ft bgs, although silty and clayey stringers are present in many locations. Driller reports for several wells located within T. 20 N, R. 14 E.W.M. Section 19 and the south part of Sections 17 and 18 indicate that well depths in the unconsolidated alluvium range between approximately 30 and 100 ft bgs, and static water levels range from about 3 to 54 ft bgs.

Groundwater flow in this aquifer is generally sub-parallel to and down the Yakima River Valley (to the southeast). The depths to groundwater in wells in the north part of Section 18 range from approximately 8 to 12 ft bgs, where land surface is fairly flat. The depths to groundwater in wells in the middle part of Section 18 are as great as 39 ft bgs, where the land surface elevation increases. The estimated elevation of groundwater in the vicinity of the subject application in the unconfined aquifer is between 2,090 and 2,100 ft msl based on topographic maps and depths to water reported on drillers' well reports.

Groundwater levels in wells in the south part of Section 18 (between the subject Parcel and the Yakima River) range from approximately 1 ft to 6 ft bgs based on driller's well reports. The elevation of groundwater in wells is close to the elevation of the Yakima River based on evaluation of topographic maps and depths-to-water. The groundwater/surface water relationship (recharge/discharge) will be affected by water-level elevations in the aquifer and the river, by hydrogeologic conditions, and by river conditions. If groundwater elevation in the aquifer is greater than the elevation of the river, there will be potential for discharge from groundwater to the river. Conversely, if the groundwater elevation in the aquifer is lower than the elevation of the river, there will be potential for recharge to groundwater from the river. These conditions and the resulting timing and magnitude of recharge/discharge may vary seasonally and yearly.

Recharge to the unconfined aquifer occurs from extensive precipitation and runoff from the mountains located to the northwest. In addition, reservoir storage is held in Lake Keechelus (capacity of 157,800 ac-ft/yr) and Lake Kachess (239,000 ac-ft/yr), which provides a regulated and generally continuous source of flow in the Yakima River and recharge to the groundwater system.

Well yields based on air tests conducted by the drillers are estimated to range between 10 and 75 gallons per minute (gpm). Specific capacity information is not available, so estimates of transmissivity cannot be derived. The drillers' logs indicate highly variable texture and size, ranging from clay and sand, to silty sand, to sand and gravel. The hydraulic conductivity is estimated to range from 100 gallons per day per ft^2 (gal/day/ft^2) to 5,000 gal/day/ft^2 based on Freeze and Cherry (1979). The transmissivity range is likely from approximately 4,000 to 200,000 gallons per day per ft (gal/day/ft) based on the product of aquifer thickness (40 ft) multiplied by hydraulic conductivity.

Physical Water Availability

Based on the location's hydrogeologic setting, area well information, and recharge sources, water is physically available from the unconfined alluvial aquifer in the subject area to satisfy the proposed uses. It is recommended that the subject well be restricted to and authorized for the upper, unconfined alluvial sediment aquifer. Water is available without injury to the Total Water Supply Available by way of mitigation offered through use of WRTS File No. CS4-01676sb5d@3 in accordance with WAC 173-539A-060 and water provided in coordination with the State of Washington Trust Water Program.

Impairment Considerations

Impairment is an adverse impact on the physical availability of water for a beneficial use that is entitled to protection. A water right application may not be approved if it would:

- Interrupt or interfere with the availability of water to an adequately constructed groundwater withdrawal facility of an existing right. An adequately constructed groundwater withdrawal

facility is one that (a) is constructed in compliance with well construction requirements and (b) fully penetrates the saturated zone of an aquifer or withdraws water from a reasonable and feasible pumping lift.

- Interrupt or interfere with the availability of water at the authorized point of diversion of a surface water right. A surface water right conditioned with instream flows may be impaired if a proposed use or change would cause the flow of the stream to fall to or below the instream flow more frequently or for a longer duration than was previously the case.
- Interrupt or interfere with the flow of water allocated by rule, water rights, or court decree to instream flows.
- Degrade the water quality of the source to the point that the water is unsuitable for beneficial use by existing users (e.g., via sea water intrusion).

Groundwater Rights Impairment Discussion

A Determination of Water Budget Neutrality (WBN) for Request No. G4-35400 was granted for a location approximately 1,900-2,000 ft south-southeast of well AKW634. This WBN includes three proposed wells on three lots (Parcels 949681, 949682, and 949683). In addition, a water right claim G4-034936 for groundwater use is located approximately 1,650 ft southeast of well AKW634.

The Theis non-equilibrium equation was used to evaluate the potential drawdown at distances of 200 ft and 1,500 ft, using the parameters given. The evaluation was performed for 200 ft because other wells that are permit exempt may be located at this distance, based on lot sizes and aerial photographs of nearby homes. The transmissivity is assumed to range from 4,000 to 200,000 gal/day/ft, and the specific yield is assumed to be 0.15. The hydraulic conductivity values used in the unconfined-aquifer analysis are 100 and 5,000 gal/day/ft^2, with an aquifer thickness of 40 ft. The pumping rate is assumed to be 50 gpm, but the total quantity of 2.898 ac-ft for the entire water system would be exceeded after pumping continuously at this rate for approximately 13 days. Actual water use will be cyclic, and it is not realistic to assume continuous pumping will occur based on common small water system operations. However, to be conservative, the drawdown (and potential for impairment to senior groundwater rights) is evaluated at 1-day and 5-days of continuous pumping.

The drawdown associated with pumping for a long duration may also be offset by capture of recharge from the Yakima River. In summary, the withdrawal of 50 gpm from the existing well under this Application is not anticipated to interfere with the ability of senior groundwater right holders to fully utilize their well(s).

Surface Water Rights Impairment Discussion

An adjudicated surface water right (S4-83034-J) is south of well AKW643. This water right has two Points of Diversion located south at distances of approximately 1,600 ft and 2,200 ft. The elevation of the un-named source of water for these water rights is estimated between 2,120 and 2,130 ft amsl based on topographic maps. The depth to groundwater in this vicinity is approximately 30 to 38 ft bgs and groundwater pumping from well AKW643 would not likely capture water from either surface source that provides water to S4-83034-J. Groundwater withdrawal from well AKW643 would not affect the ability of the surface water-right holder to fully utilize their water rights.

Impact to the Yakima River

Evaluation of the local topography, subject parcel location, geology, area wells logs, and locations of surface water bodies suggest that pumping from the proposed well for use under G4-35576 would likely

capture water from the Yakima River. However, water is available without injury to the Total Water Supply Available by way of mitigation offered through use of WRTS File No. CS4-01676sb5d@3 in accordance with Washington Administrative Code 173-539A-060 and water provided in coordination with the State of Washington Trust Water Program.

Beneficial Use

The proposed uses of water for single domestic and incidental irrigation of lawn and garden are defined in statute as beneficial uses (RCW 90.54.020(1)).

Public Interest Considerations

When investigating a water right application, Ecology is required to consider whether the proposal is detrimental to the public interest. Ecology must consider how the proposal will affect an array of factors such as wildlife habitat, recreation, water quality, and human health. The environmental resources and other natural values associated with the area were taken into account during the consideration of this application.

Consideration of Protests and Comments
No protests were filed against this application.

Conclusions

In conclusion,

- Water is physically available at the quantities sufficient to meet project demand. When combined with the proposed mitigation measures, water is legally available under the provisions of WAC 173-539A.
- RCW 90.54.020 recognizes domestic and irrigation uses as beneficial uses of water.
- Approval of the proposed appropriation will not result in impairment of existing water rights.
- Approval of the proposed appropriation is not detrimental to the public interest.

RECOMMENDATIONS

Based on the above investigation and conclusions, I recommend that this request for a water right be approved in the amounts and within the limitations listed below and subject to the provisions listed above

Purpose of Use and Authorized Quantities

The amount of water recommended is a maximum limit and the water user may only use that amount of water within the specified limit that is reasonable and beneficial:

- 7.14 gallons per minute.
- 0.414 acre-feet per year (0.392 ac-ft/yr for single domestic and 0.022 ac-ft/yr for irrigation of lawn and garden).
- Continuous, year-round indoor single domestic supply.
- Seasonal irrigation of up to 0.011-acre of lawn and garden from June 1 through September 30 annually.

Point of Withdrawal

Approximately 2360 feet west and 1098 feet south from the northeast corner of Section 19 within the NW¼NE¼, Section 19, Township 20 North, Range14 E.W.M.

Place of Use

As described on Page 2 of this Report of Examination.

Report Writer *Date*

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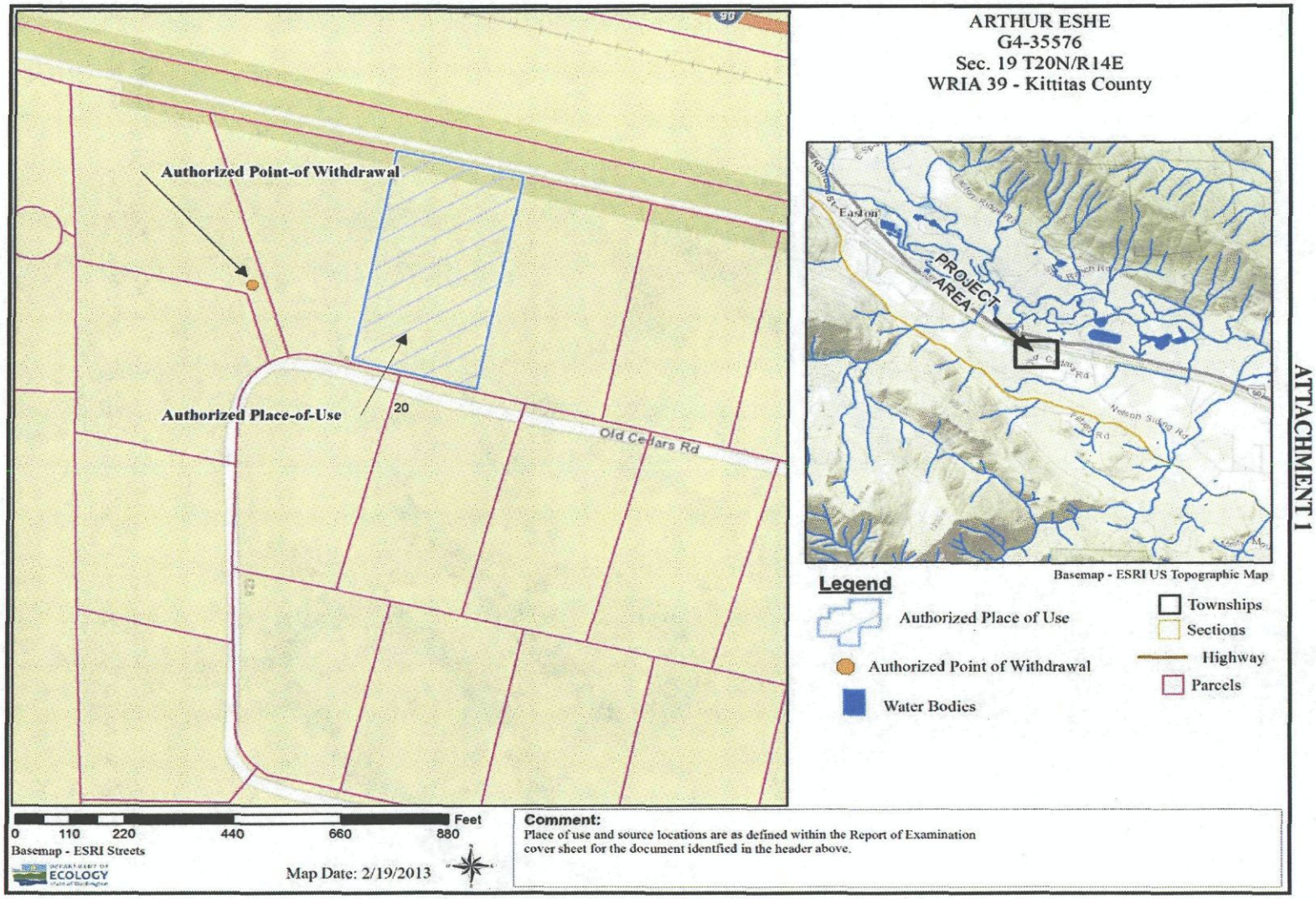

ATTACHMENT 1

Re

Miscellaneous Reports

Document Type Code - 10
(Bar-code 39, Font 48)

TECHNICAL MEMORANDUM

DATE: February 05, 2013

TO: Candis Graff; Kurt Walker; Files listed below

FROM: Stuart Luttrell

RE: Water Right Application G4-35576 (Arthur W. Eshe) Hydrogeology Review.

State of Washington Hydrogeologist 1358 Licensed Geologist
Stuart P. Luttrell
2-11-13

Application Overview

The applicant referenced above is seeking to withdraw a maximum of 0.392 acre feet per year (af/yr) for one domestic residence and seasonal irrigation of up to 500 square feet for a combined total of 0.414 af/yr. The applicant has identified an existing well (Ecology ID Tag # AKW634) (Figure 1) as the proposed Point of Withdrawal (POW). The requested instantaneous quantity is 7.14 gallons per minute (gpm). The proposed use of the water is ultimately for a Group B water system, and the total maximum instantaneous withdrawal rate requested in the application is 50 gallons per minute for the entire system. Therefore, a rate of 50 gallons per minute is considered in this evaluation.

Authority and Purpose: The applicant's property and well are located in an area subject to the Upper Kittitas Ground Water Rule Washington Administrative Code (WAC) 173-539(A) which requires that the consumptive portion of any new water use be mitigated. Mitigation for this application is discussed in the associated ROE. Conclusions and recommendations given in this Technical Memoradum rely on the assumption that mitigation as required in WAC 173-539(A) has been satisfied.

In accordance with Chapter 90.03.290 of the Revised Code of Washington (RCW), determinations must be made on four criteria in order to approve an application for a water right:

1. Water must be available
2. There must be no impairment of existing water rights
3. The water use must be beneficial
4. The water use must not be detrimental to the public interest.

Availability considers both physical available and legal availablility. Legal availability, beneficial use, and public interest criteria will be addressed within the Report of Exam (ROE) for this application. Therefore, it is the purpose of this technical memorandum to evaluate whether or not water is physically available and whether or not there would be impairment of existing water rights as a result of the proposed withdrawals.

Well Location: The proposed place of use and point of withdrawal (existing well AKW634) is located within Kittitas County Parcel ID # 953673 (Figure 1), also known as Lot 8B of the Old Cedars Short Plat 07-24.

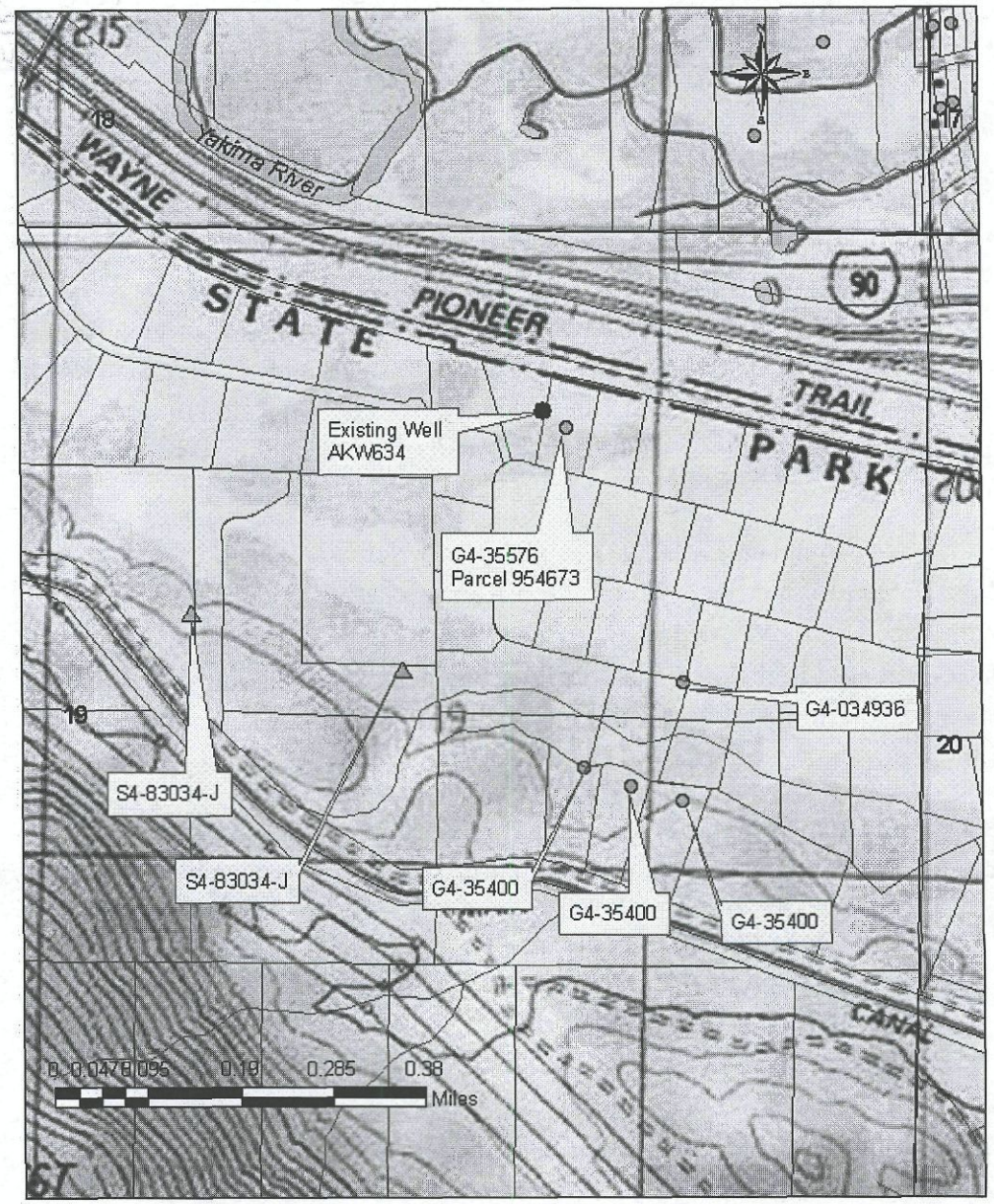

Figure 1. Location of Water Right Application G4-35576 and other pertinent features.

Existing Well Details

Well AKW634 was drilled in July 2005 to a total depth of 70 ft below ground surface (bgs), and penetrated various sizes and textures of alluvial materials. A screen was installed from 60 to 70 ft bgs in aquifer materials consisting of silty sand, course sand, and pea gravel. According to the driller's log, the static water level was 11 ft below top of casing (9 ft bgs assuming two feet of casing above ground) after the well was completed. There is no indication of confining units, so the aquifer at this location is interpreted to be unconfined. The well was air-tested by the driller at an estimated discharge rate of 35 gpm.

Geology and Hydrogeology

The subject parcel is situated in the Yakima River Valley on fairly level land at an elevation of approximately 2,110 feet above mean sea level (msl). The parcel is approximately 2 miles west of the mouth of Big Creek. Tabor et al. (2000) map recent alluvium and glacial deposits as the valley-fill deposits in the area. In this location, the Swauk Formation and overlying Teanaway Basalts form the north valley wall of Easton Ridge. Rocks of the Easton Metamorphic Suite form the south valley walls. The Straight Creek Fault is mapped by Tabor et.al. (2000) as underlying the valley near the subject parcel, but does not appear to affect local groundwater flow characteristics.

The aquifer of interest is unconfined and occurs as the saturated portion of the Yakima River Valley alluvial unconsolidated sediments. A well located approximately 1,500 ft southeast of the subject well was drilled to a total depth of 320 ft and encountered silty sand to a depth of 139 ft, below which the sediments were described as clay, silty clay and silty sand with clay; the well was decommissioned because it did not produce water. Material descriptions from this and other nearby wells indicate the most permeable portion of the aquifer exists in roughly the upper 80 ft bgs, although silty and clayey stringers are present in many locations. Driller reports for several wells located within T. 20 N, R 14 E Section 19 and the south part of Sections 17 and 18 indicate that well depths in the unconsolidated alluvium range between approximately 30 and 100 feet bgs, and static water levels range from about 3 to 54 ft bgs.

Groundwater flow in this aquifer is generally sub-parallel to and down the Yakima River Valley (to the southeast). The depths to groundwater in wells in the north part of Section 18 range from approximately 8 to 12 ft bgs, where land surface is fairly flat. The depths to groundwater in wells in the middle part of Section 18 are as great as 39 ft bgs, where the land surface elevation increases. The estimated elevation of groundwater in the vicinity of the subject application in the unconfined aquifer is between 2,090 and 2,100 ft msl based on topographic maps and depths to water reported on drillers' well reports.

Groundwater levels in wells in the south part of Section 18 (between the subject Parcel and the Yakima River) range from approximately 1 ft to 6 ft bgs based on driller's well reports. The elevation of groundwater in wells is close to the elevation of the Yakima River based on

evaluation of topographic maps and depths-to-water. The groundwater/surface water relationship (recharge/discharge) will be affected by water-level elevations in the aquifer and the river, by hydrogeologic conditions, and by river conditions. If groundwater elevation in the aquifer is greater than the elevation of the river, there will be potential for discharge from groundwater to the river. Conversely, if the groundwater elevation in the aquifer is lower than the elevation of the river, there will be potential for recharge to groundwater from the river. These conditions and the resulting timing and magnitude of recharge/discharge may vary seasonally and yearly.

The Yakima River elevation is approximately 2,100 ft above msl at a distance of approximately 1,600 ft northwest of the subject Parcel. Precise groundwater/surface water level elevations cannot be determined without a land survey, but for purposes of this evaluation it is assumed there is a hydrologic connection between the groundwater and the Yakima River. It is further assumed that the groundwater beneath the subject Parcel and groundwater adjacent to the Yakima River are continuous.

Recharge to the unconfined aquifer occurs from extensive precipitation and runoff from the mountains located to the northwest. In addition, reservoir storage is held in Lake Keechelus (capacity of 157,800 ac-ft/yr) and Lake Kachess (239,000 ac-ft/yr), which provides a regulated and generally continuous source of flow in the Yakima River and recharge to the groundwater system.

Well yields based on air tests conducted by the drillers are estimated to range between 10 and 75 gallons per minute (gpm). Specific capacity information is not available, so estimates of transmissivity cannot be derived. The drillers' logs indicate highly variable texture and size, ranging from clay and sand, to silty sand, to sand and gravel. The hydraulic conductivity is estimated to range from 100 gallons per day per ft^2 (gal/day/ft^2) to 5,000 gal/day/ft^2 based on Freeze and Cherry (1979). The transmissivity range is likely from approximately 4,000 to 200,000 gallons per day per ft (gal/day/ft) based on the product of aquifer thickness (40 ft) multiplied by hydraulic conductivity.

Physical Water Availability

Based on the location's hydrogeologic setting, area well information, and recharge sources, water is physically available from the unconfined alluvial aquifer in the subject area to satisfy the proposed uses. It is recommended that the subject well be restricted to and authorized for the upper, unconfined alluvial sediment aquifer. Water is available without injury to the Total Water Supply Available by way of mitigation offered through use of WRTS File No. CS4-01676sb5d@3 in accordance with WAC 173-539A-060 and water provided in coordination with the State of Washington Trust Water Program. Legal availability is ultimately a permitting/management decision that is, in part, based on the information provided above.

Impairment, Qualifying Works, Well Interference and Capture of Surface Water

There are four concepts that are important when considering whether a withdrawal of water from a well would impair another existing water right. The concepts are defined as follows:

Impairment is an adverse impact on the physical availability of water for a beneficial use that is entitled to protection. A water right application may not be approved if it would:

- Interrupt or interfere with the availability of water to an adequately constructed groundwater withdrawal facility of an existing right.
- Interrupt or interfere with the availability of water at the authorized point of diversion of a surface water right. A surface water right conditioned with instream flows may be impaired if a proposed use or change would cause the flow of the stream to fall to or below the instream flow more frequently or for a longer duration than was previously the case.
- Interrupt or interfere with the flow of water allocated by rule, water rights, or court decree to instream flows.

Qualifying Works (ground water withdrawal facilities) are defined as those wells which in the opinion of the Department are adequately constructed. An adequately constructed well is one that (a) is constructed in compliance with well construction requirements; (b) fully penetrates the saturated thickness of an aquifer or withdraws water from a reasonable and feasible pumping lift (WAC 173-150); (c) has withdrawal facilities capable of accommodating a reasonable variation in seasonal pumping water levels; and (d) the withdrawal facilities and pumping facilities are properly sized to match the ability of the aquifer to produce water.

Well interference is the overlap of the cones of depression for two or more wells. Well interference reduces the water available to the individual wells and may occur when several wells penetrate and withdraw groundwater from the same aquifer. Each pumping well creates a drawdown cone. When several wells pump from the same aquifer, well density, aquifer characteristics, and pumping demand may result in individual drawdown cones that intersect and form a composite drawdown cone.

Capture of Surface Water occurs as "…a reduction in the natural discharge (or outflow) rate of groundwater from the aquifer or an increase in the natural or artificial recharge (or inflow) rate to the aquifer. The primary sources of captured discharge are groundwater that would otherwise have flowed to streams, drains, lakes, or oceans, as well as reduction in groundwater evapotranspiration…" (Barlow and Leake, 2012).

The proposed use of this Application is for a Group B water system; therefore potential for impairment to other water right holders is evaluated based on the total instantaneous volume of 50 gpm requested in the application for the entire group. This evaluation also considers the total

water use requested (2.898 aft/yr), which limits the duration pumping will occur at the total instantaneous volume.

Groundwater Rights Impairment Discussion

A Determination of Water Budget Neutrality (WBN) for Request No. G4-35400 (location is shown on Figure 1) was granted for a location approximately 1,900-2,000 ft south-southeast of well AKW634. This WBN includes three proposed wells on three lots (Parcels 949681, 949682, and 949683). In addition, a water right claim G4-034936 (shown on Figure 1) for groundwater use is located approximately 1,650 ft southeast of well AKW634.

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Results of the Theis analysis corrected for unconfined conditions are shown in Table 1. The drawdown associated with pumping for a long duration may also be offset by capture of recharge from the Yakima River. In summary, the withdrawal of 50 gpm from the existing well under this Application is not anticipated to interfere with the ability of senior groundwater right holders to fully utilize their well(s).

Surface Water Rights Impairment Discussion

An adjudicated surface water right (S4-83034-J; shown on Figure 1) is south of well AKW643. This water right has two Points of Diversion located south at distances of approximately 1,600 ft and 2,200 ft. The elevation of the un-named source of water for these water rights is estimated between 2,120 and 2,130 ft amsl based on topographic maps. The depth to groundwater in this vicinity is approximately 30 to 38 ft bgs and groundwater pumping from well AKW643 would not likely capture water from either surface source that provides water to S4-83034-J. Groundwater withdrawal from well AKW643 would not affect the ability of the surface water-right holder to fully utilize their water rights.

Transmissivity (gal/day/ft)	Hydraulic conductivity (gal/day/ft^2)	Aquifer Thickness (ft)	Time (days)	Distance (ft)	Drawdown (ft)
4,000	100	40	1	200	.083
4,000	100	40	5	200	0.69
200,000	5,000	40	1	200	.043
200,000	5,000	40	5	200	.066
4,000	100	40	1	1,500	Negligible
4,000	100	40	5	1,500	Negligible
200,000	5,000	40	1	1,500	$1.3x10^{-3}$
200,000	5,000	40	5	1,500	.012

Table 1. Estimated drawdown in wells located 200 ft and 1,500 ft from well AKW634 pumping at a rate of 50 gpm for 1 day and 5 days, for different aquifer hydraulic characteristics.

Impact to the Yakima River

Evaluation of the local topography, subject parcel location, geology, area wells logs, and locations of surface water bodies suggest that pumping from the proposed well for use under G4-35576 would likely capture water from the Yakima River. However, water is available without injury to the Total Water Supply Available by way of mitigation offered through use of WRTS File No. CS4-01676sb5d@3 in accordance with Washington Administrative Code 173-539A-060 and water provided in coordination with the State of Washington Trust Water Program. Legal availability is ultimately a permitting/management decision that is, in part, based on the information provided above.

REFERENCES:

Freeze, R.A., and J.A. Cherry. 1989. *Groundwater*. Prentice-Hall, inc. Englewood Cliffs, New Jersey.

Tabor, R.W., V. A. Frizzell, Jr., D. B. Booth, and R. B. Waitt. 2000. Geologic Map of the Snoqualmie Pass 30 X 60 Minute Quadrangle, Washington. USGS Map I-2583.

Washington Department of Ecology Well Database, available at: http://apps.ecy.wa.gov/welllog/

DRAFT ANALYSIS LIMITATIONS:

This draft analysis has been prepared for the Request for Water Right Permit No. G4-35576, WRIA 39, Kittitas County, Washington. This report is not intended for use for projects, applications, or determinations other than for the Request for Water Right Permit No. G4-35576 and the information contained herein is not applicable to other sites. A number of unique, application or project specific factors were considered when preparing this draft analysis. This draft analysis should not be applied to any purpose or project besides the determination, application or project for which it was prepared.

Because each hydrogeologic study is unique, each hydrogeologic analysis is unique and is based on conditions that existed at the time the determination, application or project investigation was performed. The findings and conclusions of this draft analysis may, however, be affected by the passage of time as a result of either manmade or natural events.

The practice of geology, geological engineering and hydrogeology are far less exact than other engineering and natural science disciplines. Interpretations of subsurface conditions presented in this draft report are based on available data. As this is a draft analysis, professional judgment was applied to form a preliminary opinion about subsurface conditions throughout the area of interest. Actual subsurface conditions may differ, sometimes significantly, from those indicated in this report. Thus, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.